

New York State Department of Transportation

Yellow Flag NB2358W019

By: Alex Abreu

Flag Date: June 01, 2023

Superseding Information:

This flag supersedes: YF NB22U4W003

Structure Information

BIN: 1065318

Feature Carried: 278I278IX2M23027

Feature Crossed: 6TH AVENUE

Orientation: 8 - NORTHWEST

Region: 11 - NEW YORK CITY

County: KINGS

Political Unit: City of NEW YORK

Approximate Year Built: 1962

Posted Load Matches Inventory : Yes

Bridge Load Posting (Tons) : Not Posted for Load

Primary Owner: New York State Department of Transportation

Primary Maintenance Responsibility: 12 - State - Subcontracted to another Party

Typical or Main Span Type: 3 - Steel, 02 - Stringer/Multi-Beam or Girder

This Bridge is not a Ramp

Number of Spans: 322

Verbal Notification Information

Person Notified: Muhammad Mubeen

Date: June 02, 2023 9:53:00 PM

Of: NYSDOT Region 11

Signature Information

Signature: Alex Abreu, P.E. 099761-1

Date: June 22, 2023

Reviewed By: Robert Kemp

Date: June 22, 2023

Attachments: 8

Flagged Elements

Parent Element	Element	Total Quantity	Unit
Span Number : 164			
	PR311 - Movable Bearing	17	each
	107 - Steel Open Girder/Beam	729	ft
	PR831 - Steel Beam End	34	each

Flagged Condition Description

This Yellow Flag NB2358W019 supersedes previously issued Yellow Flag No. NB22U4W003.

Location: Span 164, Girder G14 bearing at Pier 164.

Description:

The Girder G14 bearing at Pier 164 is misaligned and no longer engaged with the girder with the bearing spindle pushed towards the left side resulting in the girder web overhanging the right side of the bearing for approximately 1/2" (left end of the bearing spindle is approximately 1-1/2" from the face of the girder web) (Photos 4 and 5). There is a 1/4" gap between the bearing spindle and girder web. The bearing exhibits pack rust between the masonry plate and the bearing brick shaped device resulting in a 1/8" gap allowing the bearing device to move laterally upon by hand. (Photo 6) Also, the bronze plate exhibits up to 1/2" pack rust. The guide angles on both sides of the girder web exhibit 100% section loss along the begin side edges of the angles up to 1-1/2" wide with up to 90% section loss in the remaining area of the angles. The bolts and nuts at both guide angles exhibit 50%-75% section loss.

The girder web has as-measured web thickness of approximately 2-1/2" for approximately 18-1/2" long area starting at the girder end followed by 0.667" for remaining length of girder. The girder web above the bearing exhibits 1-1/2" to 2" remaining web thickness measured (RTM) resulting in 11%-33% section loss with the overall shear web area section loss of approximately 24%. The lower web area above the bottom flange in front of the bearing (begin side of the bearing) exhibits 1.82"-1.87" RTM (as-measured web thickness of 2-1/2") and 0.125"-0.30" RTM (as-measured web thickness of 0.667") resulting in 17%-81% section loss with the overall web bearing area section loss of approximately 38%. In addition, the lower web exhibits three corrosion holes for 1/2" diameter, 2"L x 1-1/2"H, and 4-1/2"L x 2"H starting approximately 21-1/2" from the end of the girder. Also, the bottom flange of the girder exhibits up to 75% section loss over both leg for 6" wide area over 65" long. (Photos 7 and 8)
(refer to Yellow Flag Condition Sketch Photo #2 for more details)

There are minor changes to the flagged condition.

Notes:

1. Adjacent Girder G13 has repair plates in good condition at Pier 164.
2. Adjacent Stringer S3 has repair plates in good condition at Pier 164. Stringer S3 supports the railing above and does not take any live load.
3. At a distance of 18-1/2" from the end of Girder G14, the thickness of the Girder G14 web decreases from 2-1/4" to 0.667"thick.
4. The pedestal below the bearing at Girder G14 exhibits up to 15% section loss for the full height of the vertical stiffener support plates.
5. The superstructure members within the span have been newly cleaned and painted.
6. Yellow Flag No. NB22U4W002 was issued during the previous inspection for this Girder G14 at Pier 163 (the other end of this Girder G14), for web section loss of 56% in the Girder G14 web shear area along the connection angle at the connection of G14 to Pier 163. This location was unable to be inspected at the time of issuing this flag due to the fact that there was platform scaffolding in place which was not certified to be accessed.
7. A double right lane closure on 3rd Avenue Eastbound travel direction with 35' bucket truck is required to access the flagged location.

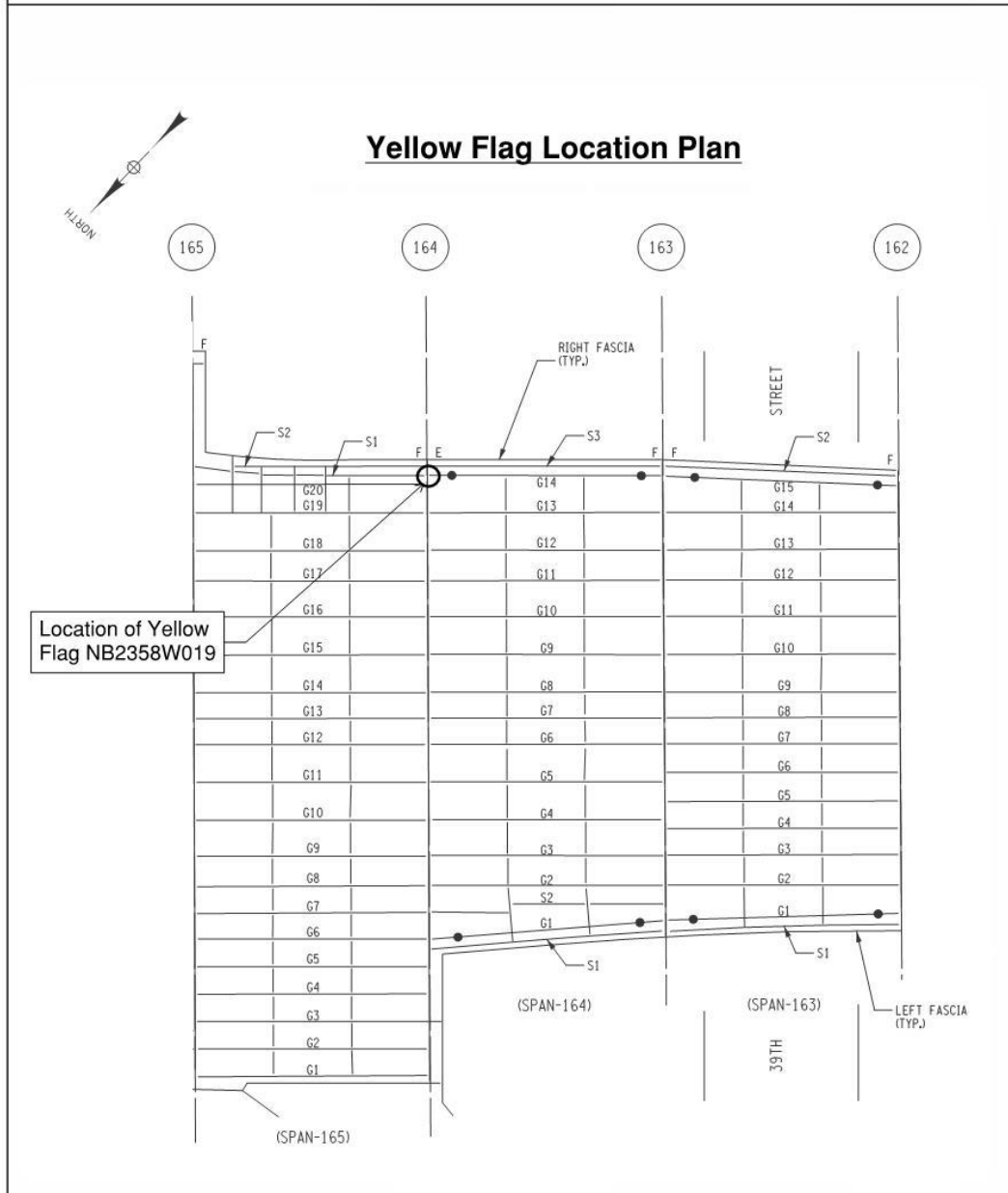
Flag PhotographsPhoto Number: **1**Photo Filename: **23_Flag Location Plan.jpg**Gowanus Expressway
2023 Biennial Inspection - Field SketchBIN: 1065318Team: AA/TSDate: 06/01/2023Span: 164Location: Bearing under G14 at Pier 164**wsp****Attachment Description: Flag Location Plan**

Photo Number: 2

Photo Filename: 23_Span 164_Pier 164_Bearing G14_Connection

Gowanus Expressway
2022 Biennial Inspection - Field Sketch

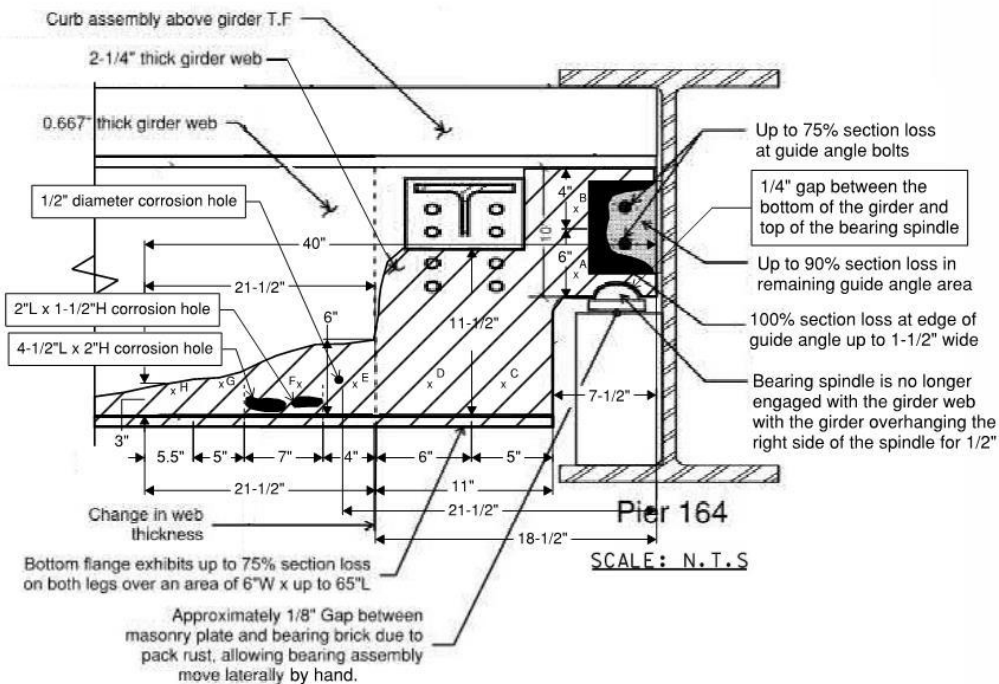
BIN: 1065318

Team: AA/TS

Date: 06/01/2023

Span: 164

Location: Bearing under G14 at Pier 164

Right Face of Bearing under Girder G14

Point	D-Meter Readings (in)	Calculated Section Loss (%)
A	1.5	33%
B	2	11%
C	1.875	17%
D	1.82	19%
E	0.28	58%
F	0.125	81%
G	0.25	63%
H	0.3	55%

Notes:

-As-measured web thickness is approximately 2-1/2" for approximately 18-1/2" long area starting at the girder end followed by 0.667" for remaining length of girder

Section Loss Calculations:

Shear web area:

$$6" \times 1.5" [\text{Point A}] + 4" \times 2.0" [\text{Point B}] = 17 \text{ in}^2$$

Overall shear web area section loss:

$$((10" \times 2.25") - 17 \text{ in}^2) / (10" \times 2.25") \times 100 = 24\%$$

Web bearing area:

$$5" \times 1.875" [\text{Point C}] + 6" \times 1.82" [\text{Point D}] + 3.5" \times 0.28" [\text{Point E}] + 0.5" \times 0" (1/2" \text{ diameter hole}) + 6.5" \times 0" (\text{two corrosion holes}) + 0.5" \times 0.125" [\text{Point F}] + 5" \times 0.25" [\text{Point G}] + 5.5" \times 0.30" [\text{Point H}] = 24.24 \text{ in}^2$$

Overall web bearing area section loss (over 32.5" long area):

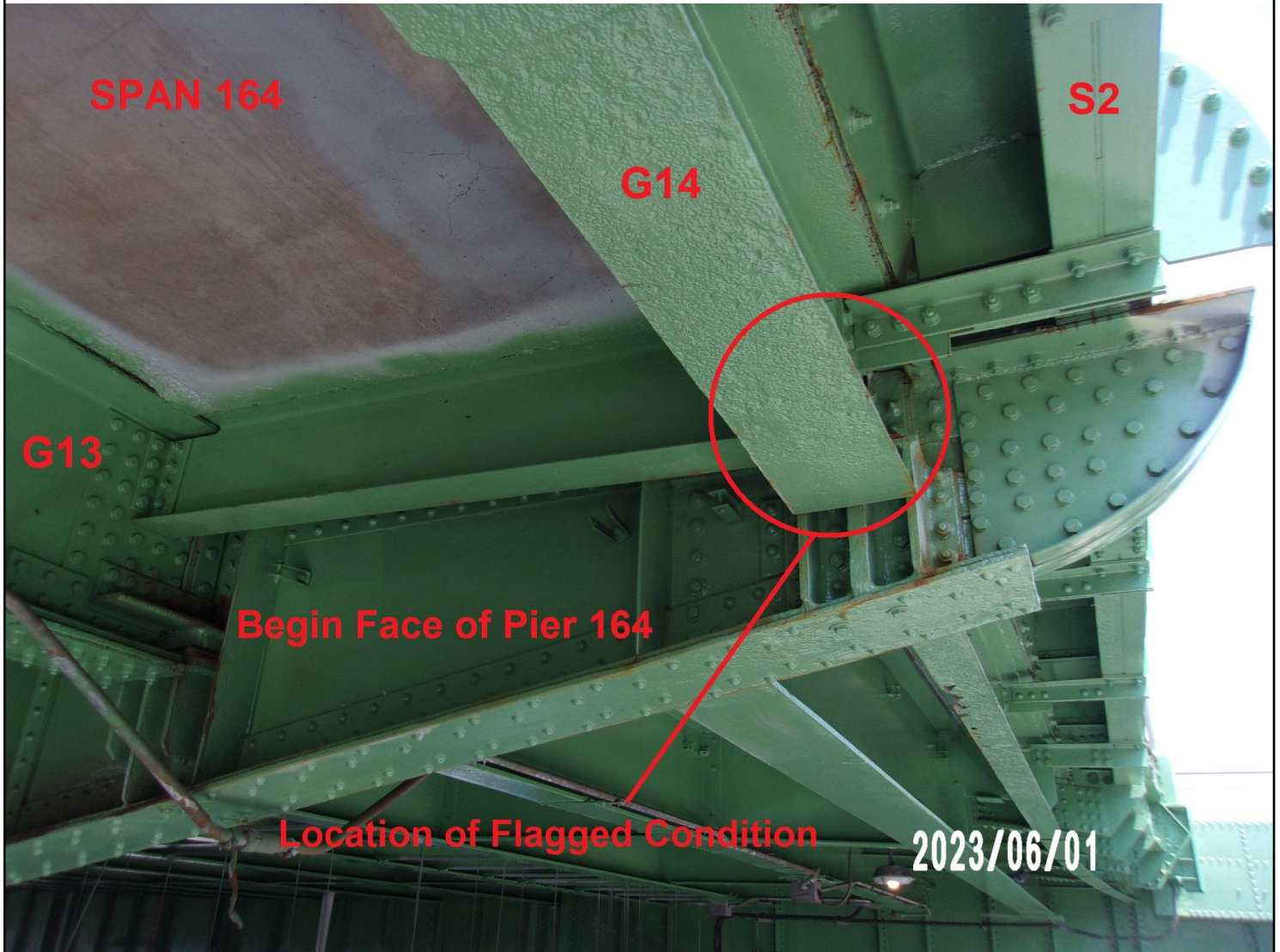
$$((11" \times 2.25" + 21.5" \times 0.667") - 24.24 \text{ in}^2) / (11" \times 2.25" + 21.5" \times 0.667") \times 100 = 38\%$$

wsp

Attachment Description: Flag Condition Sketch

Photo Number: 3

Photo Filename: 23_113_7479.JPG



Attachment Description: General view of the flagged condition at Girder G14 on Span 164 side of Pier 164. Looking End.

Photo Number: 4

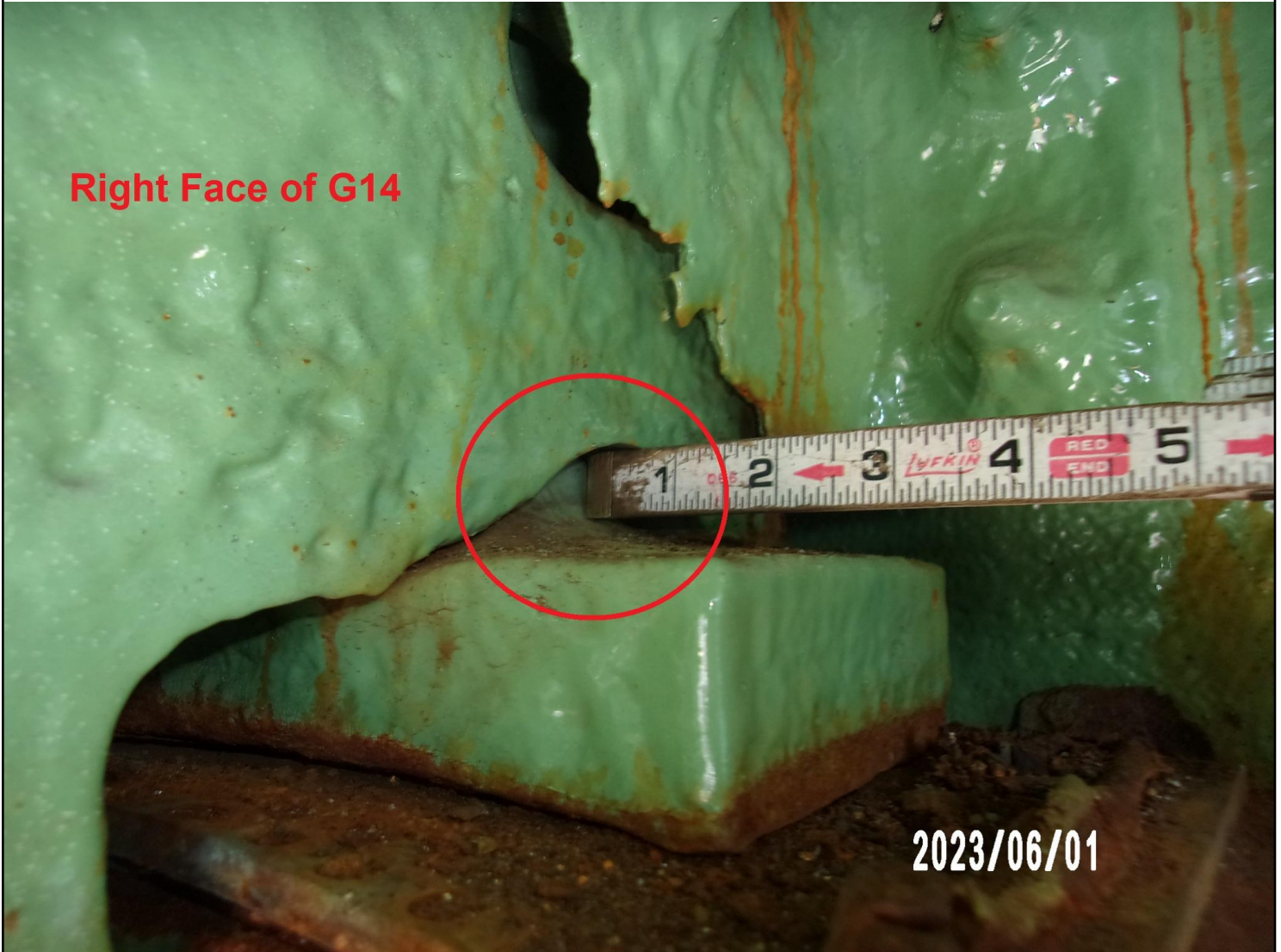
Photo Filename: 23_113_7461.JPG



Attachment Description: The left side of the bearing under Girder G14 on Span 164 side of Pier 164. The bearing is misaligned and no longer engaged with the girder with the bearing spindle pushed towards the left side with the left end of the bearing spindle approximately 1-1/2" from the face of the girder web. Looking Right.

Photo Number: 5

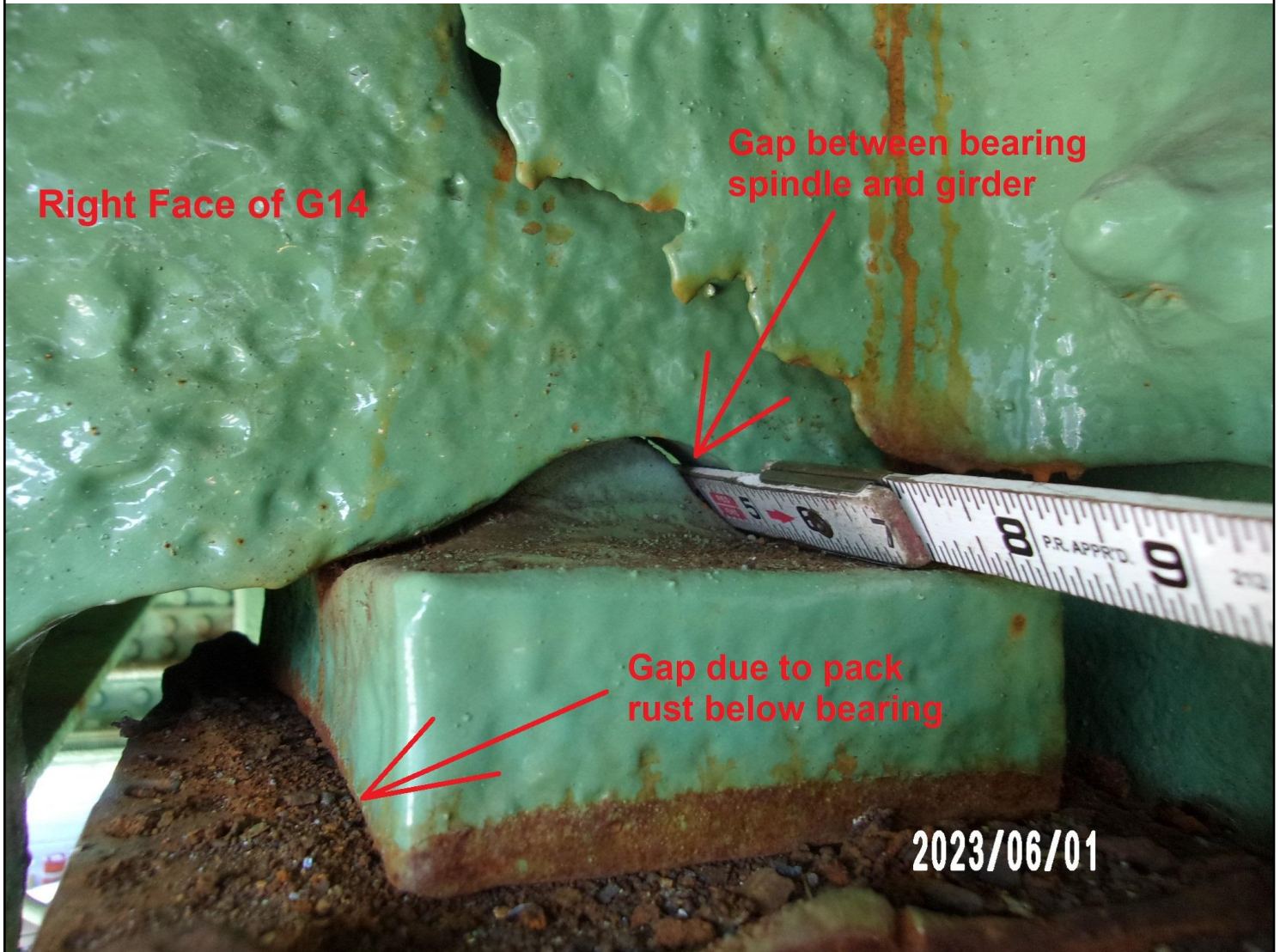
Photo Filename: 23_113_7460.JPG



Attachment Description: The right side of the bearing under Girder G14 on Span 164 side of Pier 164. The bearing is misaligned and no longer engaged with the girder with the bearing spindle pushed towards the left side resulting in the girder web overhanging the right side of the bearing for approximately 1/2". Looking Left.

Photo Number: 6

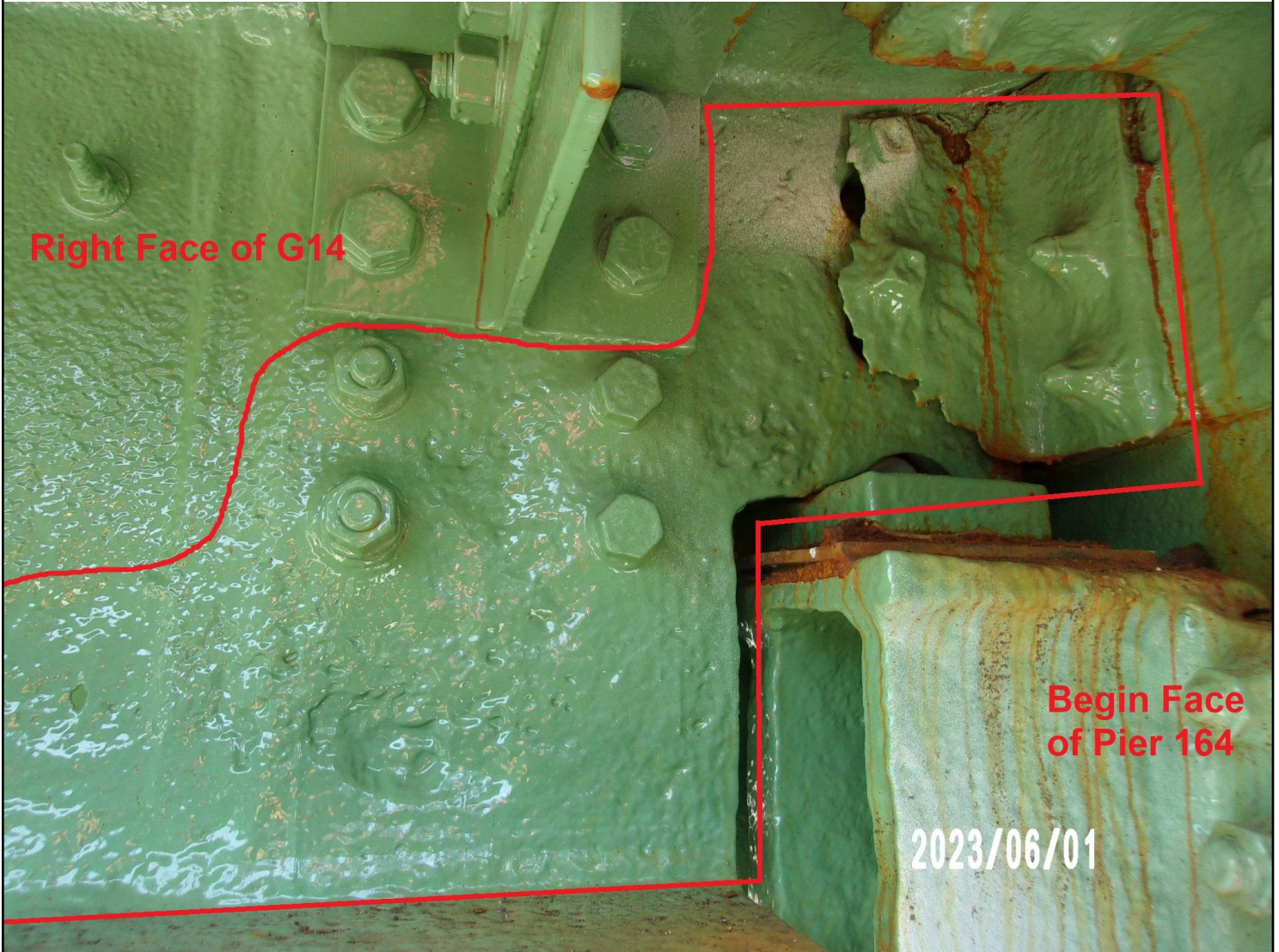
Photo Filename: 23_113_7463.JPG



Attachment Description: The right side of the bearing under Girder G14 on Span 164 side of Pier 164. The bearing exhibits 1/4" gap between the bearing spindle and girder web. Also, the bearing exhibits pack rust between the masonry plate and the bearing brick shaped device resulting in a 1/8" gap allowing the bearing device to move laterally upon by hand. Looking Left.

Photo Number: 7

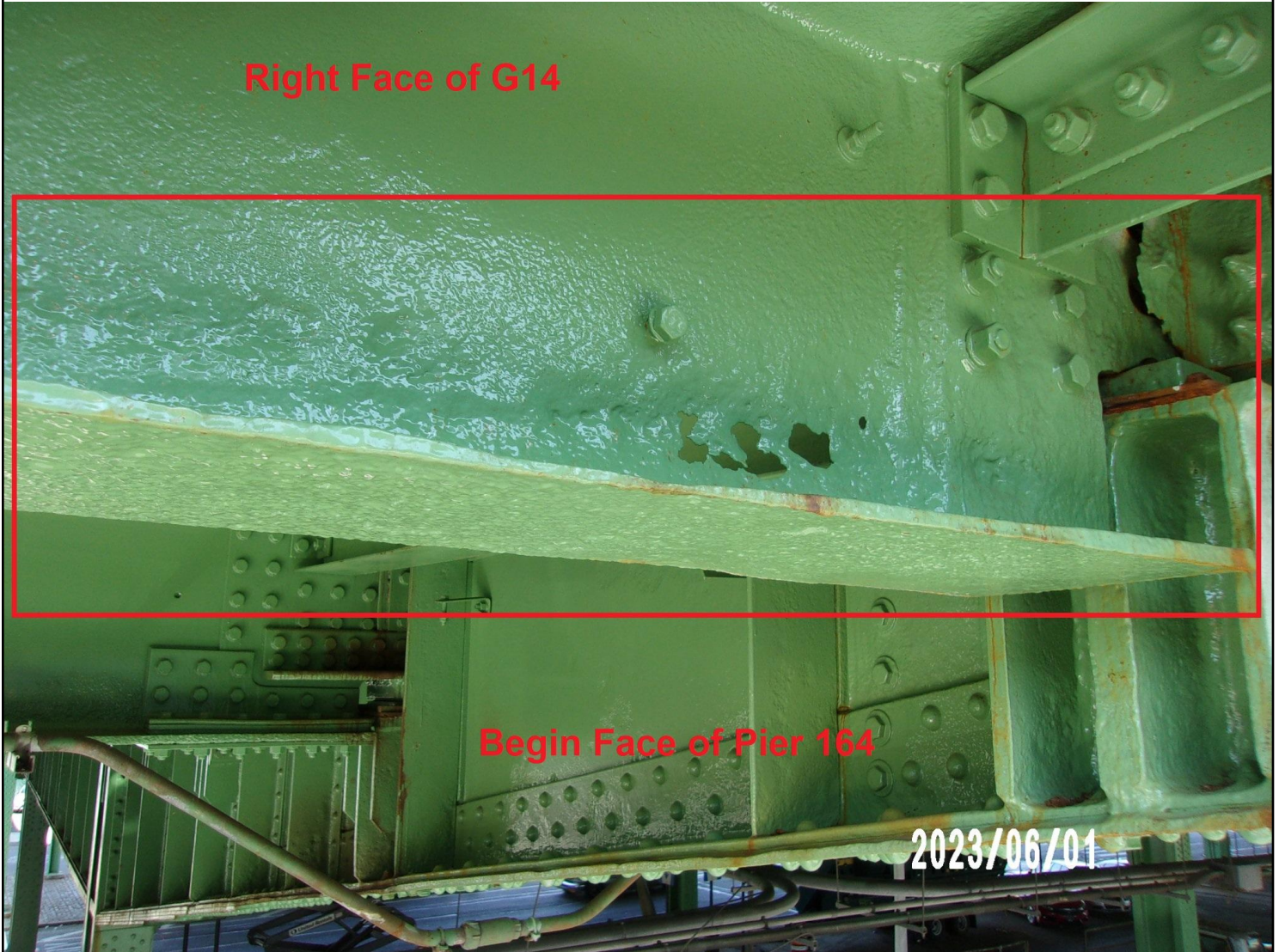
Photo Filename: 23_113_7466.JPG



Attachment Description: The right face of Girder G14 on Span 164 side of Pier 164. The guide angle exhibits 100% section loss along the edge with up to 90% section loss in the remaining area. Also, the bolts and nuts at the guide angle exhibit 50%-75% section loss. In addition, the girder web above the bearing exhibits 11%-33% section loss with the overall shear web area section loss of 24%. Looking Left.

Photo Number: 8

Photo Filename: 23_113_7471.JPG



Attachment Description: The right face of Girder G14 on Span 164 side of Pier 164. The lower web above the bottom flange exhibits 17%-81% section loss with the overall web bearing area section loss of approximately 38%. In addition, the lower web exhibits three corrosion holes for 1/2" diameter, 2"L x 1-1/2"H, and 4-1/2"L x 2"H. Also, the bottom flange exhibits up to 75% section loss. Looking End and Left.